

Having thus described the invention, what is claimed is:

1. A method of switching digital information packets between network nodes, including forming a digital information packet comprising at least one of the following fields in a portion of the digital information packet allocated for Internet Protocol (IP) address fields:

a Packet Number field for indicating whether the packet is the first packet in a chain of packets, or a generic packet for a specific purpose;

at least one virtual connection identifier;

a Quality of Service (QoS) field for identifying parameters of Quality of Service;

a management field containing a management message; and

a security field for indicating security parameters for providing security of packet transmission.

2. The method of claim 1, wherein the virtual connection identifier is provided for identifying at least one virtual channel and at least one virtual path, and the virtual channel is a subset of the virtual path.

3. The method of claim 1, wherein the portion allocated for IP address fields further comprising a packet type field for identifying the method of switching.

4. The method of claim 1, wherein the QoS field includes a Class of Service (COS) field for identifying parameters of Class of Service.

5. The method of claim 1, wherein at least one table is provided for storing packet switching information.

6. The method of claim 5, wherein the table is configured for storing the virtual connection identifier.

7. The method of claim 5, wherein the table is configured for storing the security parameters.

8. The method of claim 5, wherein the table is configured for storing the management message.

9. A packet switching system for switching digital information packets, comprising
a packet identifying unit for identifying an incoming packet to determine a virtual connection identifier and a type of digital information carried by the incoming packet, the virtual connection identifier is arranged in a portion of the incoming packet allocated for IP address fields; and

a path selection unit responsive to the virtual connection identifier for selecting a path suitable for the determined type of the digital information.

10. The system of claim 9, wherein the virtual connection identifier is provided for identifying at least one virtual channel and at least one virtual path, and the virtual channel is a subset of the virtual path.

11. The system of claim 9, further comprising a control unit responsive to incoming packets for assigning priorities for transmission of the incoming packets.

12. The system of claim 11, wherein the control unit is configured to allocate transmission bandwidths based on the assigned priorities.

13. The system of claim 12, further comprising an input configuration unit responsive to a user input for changing the assigned priorities.

14. The system of claim 13, further comprising a security unit for setting security parameters.

15. The system of claim 14, further comprising a switching table for storing virtual connection identifiers of the incoming packets.

16. The system of claim 15, wherein the switching table further comprises the security parameters set by the security unit.

17. The system of claim 16, wherein the switching table further comprises management parameters for determining packet processing parameters.

18. A communications system comprising a switching mechanism for switching digital information packets having virtual connection identifiers in portions of the packets allocated for IP addresses, by selecting paths suitable for digital information carried by the packets, based on the virtual connection identifiers.

19. The system of claim 18, wherein the virtual connection identifier is provided for identifying at least one virtual channel and at least one virtual path, and the virtual channel is a subset of the virtual path.

Patent 4,936,460